

REMARKS

The Examiner's Office Action of January 16, 2003 has been received and its contents reviewed. Applicant would like to thank the Examiner for the consideration given to the above-identified application, and for indicating that claim 5 contains allowable subject matter.

By the above actions, claim 1 has been canceled without prejudice to file a divisional application directed thereto, claims 2-6 have been amended, and new claims 7-9 have been added. Accordingly, claims 2-9 are pending for consideration, of which claim 7 is independent. In view of these actions and the following remarks, reconsideration of this application is now requested.

Referring now to the detailed Office Action, Claim 5 stands rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner pointed out that the phrase "through the selective etching using said second mask pattern" should be deleted because it is conflicting with the remainder of the claim. In response, Applicant has amended claim 5 as suggested by the Examiner.

Claims 1, 3, 4 and 6 stand rejected under 35 U.S.C. 103(a) as unpatentable over Sung (U.S. Patent No. 5,838,831) in view of Huang (U.S. Patent No. 6,187,624) and Lee et al. (U.S. Patent No. 6,077,738 – hereafter Lee). Further, claim 2 stands rejected under 35 U.S.C. 103(a) as unpatentable over Sung in view of Huang and Lee, as applied to claim 1 above, and further in view of Fukuda et al. (U.S. Patent No. 6,255,151 – hereafter Fukada). These rejections are traversed for the reasons advanced below.

Claim 1 has been canceled rendering this aspect of the rejection moot. New claim 7 recites, among other features, the steps of forming a thinned portion of said second insulating film on said retained first insulating film by planarizing said second insulating film by polishing; forming a first interconnect groove in said thinned portion of said second insulating film and said retained first insulating film; and forming a buried interconnect in said first interconnect groove,

whereby said thinned portion of said second insulating film and said retained first insulating film are provided on the sides of said buried interconnect.

Specifically, according to new claim 7, since the second insulating film, which has a high mechanical strength and is formed over the first insulating film having a low mechanical strength, is planarized by polishing, defects caused in the first insulating film such as peeling and scratch can be prevented. Moreover, since the thinned portion of the second insulating film and the retained first insulating film are provided on the sides of the buried interconnect, or, in other words, since the second insulating film having a high dielectric constant is being thinned and the dielectric constant of the retained first insulating film is low, the parasitic capacitance between the buried interconnect is decreased.

With respect to the cited prior art references, Applicant respectfully asserts that both Sung and Huang not only fail to disclose forming a first interconnect groove in a thinned portion of a second insulating film and a retained first insulating film, and forming a buried interconnect in the first interconnect groove, but also completely fail to disclose that the thinned portion of the second insulating film and the retained first insulating film are provided on the sides of the buried interconnect.

With respect to Lee, the reference appears to teach forming a capacitor opening (22) in a “second insulating film”, i.e., a third insulator layer (20a) and a “first insulating film”, i.e., second insulator layer (17). However, such opening appears to be an opening of a capacitor and not an interconnect groove. Moreover, only a photo resist plug (24) is buried in the opening (22). Hence, Lee not only fails to disclose forming a first interconnect groove in a thinned portion of a second insulating film and a retained first insulating film, and forming a buried interconnect in the first interconnect groove, but also completely fails to disclose that the thinned portion of the second insulating film and the retained first insulating film are provided on the sides of the buried interconnect.

The requirements for establishing a *prima facie* case of obviousness, as detailed in MPEP § 2143 - 2143.03 (pages 2100-122 - 2100-136), are: first, there must be some suggestion or motivation, either in the reference themselves or in the knowledge generally available to one

of ordinary skill in the art, to modify the reference to combine the teachings; second, there must be a reasonable expectation of success; and, finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations.

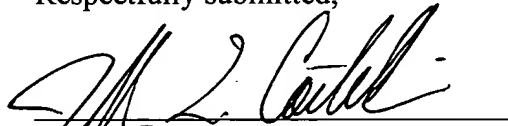
As discussed above, Sung, Huang and Lee all fail to disclose forming the buried interconnect in the interconnect groove, and to disclose that the thinned portion of the second insulating film and the retained first insulating film are provided on the sides of the buried interconnect, as recited in new independent claim 7. Therefore, their combination in a §103(a) rejection would be improper.

In view of the amendments and arguments set forth above, Applicant respectfully requests reconsideration and withdrawal of all the pending rejections.

New claims 8 and 9 have been added to further complete the scope to which Applicant is entitled. Support for new claims 8 and 9 can be found, at least in, e.g., Figs. 3B, 3C, 6B, and 6C of the present application. Further, support for amended claims 3 and 4, as well as new claims 8 and 9, can be found at least in, e.g., Fig. 5C, where first and second interconnect grooves are illustrated.

While the present application is now believed to be in condition for allowance, should the Examiner find some issue to remain unresolved, or should any new issues arise, which could be eliminated through discussions with Applicant's representative, then the Examiner is invited to contact the undersigned by telephone in order that the further prosecution of this application can thereby be expedited.

Respectfully submitted,



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